



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE SECTIONS

NEW YORK

The first 1915-16 meeting of the New York Section was held at the Manhattan Hotel, October 20, 1915, Mr. Robert E. Milligan presiding. Eighty members and guests were registered. Luncheon was served, after which Mr. Carl P. Birkenbine read a paper "Variations in Precipitation as Affecting Water Works Engineering," illustrated by lantern slides. The paper was discussed by Messrs. A. J. Provost (using lantern slides), John C. Trautwine, Jr., William W. Brush, Sidney K. Clapp and Francis F. Longley. Mr. J. Waldo Smith presented some lantern slides of the Los Angeles Aqueduct, accompanying them with a running talk.

The New York Section will have two more meetings during the winter 1915-16, the third Wednesdays in December (15th) and February (16th).

ILLINOIS

The fall meeting of the Illinois Section was held at Hotel Sherman, Chicago, October 19, 1915. Luncheon was served at the College Inn, after which automobiles, furnished by the Chicago members of the Section, and representatives of supply houses, took the members to the new Municipal pier, the Lakeview pumping station, the Wilson Avenue tunnel on the lake front, the site of the new pumping station at Mayfair, and the new Municipal shops. Dinner was served at the Hotel Sherman, after which the following papers, illustrated by lantern slides, were presented:

"Design and Construction of the New City Intake," by Mr. John Ericson; "Water Softening Practice," by Mr. Samuel A. Greeley.

Mr. W. J. Spaulding also presented a paper "Saving by Preventing Water Waste."

A letter was received from the American Society of Civil Engineers, asking for the coöperation of the Section in bringing about unity of action where the advancement of engineers interested may be jointly

undertaken. The chairman was authorized to appoint a committee to investigate and report.

The next meeting will be held, jointly with the Illinois Society of Engineers and Surveyors, at the University of Illinois, Urbana, January 25 to 27, 1916. Papers of special interest to water works men will be given on January 25, and the business of the section will be transacted on that date. On the 26th and 27th joint sessions will be held. All members of the American Water Works Association are invited to attend.

CENTRAL STATES

The first meeting of the Central States Section was held at the Chittenden Hotel, Columbus, Ohio, October 20 and 21, 1915. Papers were read as follows:

"Sources of Water Pollution," by Mr. John W. Hill; "The Development of Rapid Sand Filters in Ohio," by Mr. Phillip Burgess, and a paper by Mr. McCullom (title not reported).

The following officers of the section were elected:

Chairman, Mr. Jerry O'Shaughnessy, Columbus, Ohio.

Vice-Chairman, Mr. Elroy Tobias, Hastings, Mich.

Treasurer, Mr. A. W. Inman, Massillon, Ohio.

Directors, Mr. C. W. Wiles, Delaware, Ohio; Mr. Charles Londick, Three Rivers, Mich.; Mr. H. H. Frost, Akron, Ohio.

IOWA

A meeting of the Iowa Section has been called for December 3 and 4, 1915, but no program or particulars have been received. At this meeting the organization of this Section will be perfected and officers elected.

PHILADELPHIA

Members of the Association residing in Eastern Pennsylvania, New Jersey south of and including Trenton, Delaware and Maryland, have petitioned for the formation of a section, and the Executive Committee has granted the request. No meeting has as yet been held for organization.

OFFICERS 1915-1916

President

NICHOLAS S. HILL, JR., Consulting Engineer, 100 William St., New York, N. Y.

Vice-President

LEONARD METCALF, Consulting Engineer, 14 Beacon St., Boston, Mass.

Treasurer

JAMES M. CAIRD, Chemist and Bacteriologist, 271 River Street, Troy, N. Y.

Secretary-Editor

JOHN M. DIVEN, Superintendent of Water Works, Troy, N. Y.

Trustees

Term Expiring 1916

THEODORE A. LEISEN, General Superintendent, Board of Water Commissioners, Detroit, Mich.

CHARLES R. HENDERSON, Manager Water Works, Davenport, Ia.

Term Expiring 1917

ALLEN HAZEN, Civil Engineer, 42nd St. Building, New York, N. Y.

ALLAN W. CUDDEBACK, Engineer and Superintendent Passaic Water Company, Paterson, N. J.

Term Expiring 1918

CARLETON E. DAVIS, Chief of Bureau of Water, Philadelphia, Pa.

C. H. RUST, City Engineer and Water Commissioner, Victoria, B. C.

Executive Committee

NICHOLAS S. HILL, JR., President

GEORGE G. EARL

ROBERT J. THOMAS

H. E. KEELER

JOHN M. DIVEN

CHARLES R. HENDERSON

ALLAN W. CUDDEBACK

CARLETON E. DAVIS

JAMES M. CAIRD

LEONARD METCALF

THEODORE A. LEISEN

ALLEN HAZEN

C. H. RUST

Honorary Vice-Presidents

J. WALDO SMITH, President New York Section, Chief Engineer Board Water Supply, Municipal Building, New York, N. Y.

W. J. SPAULDING, President Illinois Section, Commissioner of Public Property, Springfield, Ill.

JERRY O'SHAUGHNESSY, Chairman Central States Section, Superintendent Department of Water, Columbus, Ohio.

WILSON F. MONFORT, President Chemical and Bacteriological Section, 506 N. Vandeventer Ave., St. Louis, Mo.

STANDING AND SPECIAL COMMITTEES 1915-1916

FINANCE

H. E. KEELER, Chairman, President Rogers Park Water Company, 633 The Rookery, Chicago, Ill.

HOWARD A. DILL, Superintendent Water Works, Richmond, Ind.

HENRY B. MORGAN, Manager Water Works Company, Peoria, Ill.

PUBLICATION

JOHN W. ALVORD, Chairman, Consulting Engineer, 1417 Hartford Bldg., Chicago, Ill.

DABNEY H. MAURY, Consulting Engineer, 1137 Monadnock Block, Chicago, Ill.

EDWARD BARTOW, Director State Water Survey, Urbana, Ill.

H. E. KEELER, President Rogers Park Water Co., 633 The Rookery, Chicago, Ill.

JOHN M. DIVEN, Editor, 47 State Street, Troy, N. Y.

MEMBERSHIP

WILLIAM R. YOUNG, Chairman, Registrar Water Department, Minneapolis, Minn.

JAMES H. CALDWELL, Civil Engineer, Troy, N. Y.

MORRIS R. SHERRERD, Chief Engineer Street and Water Commission, Newark, N. J.

NOMINATING

JOHN CAULFIELD, Chairman, 412 Ashland Avenue, St. Paul, Minn.

MORRIS R. SHERRERD, Chief Engineer Street and Water Commission, City Hall, Newark, N. J.

ROBERT J. THOMAS, Superintendent Water Works, Lowell, Mass.

M. L. WORRELL, General Manager Water Works, Meridian, Miss.

H. HYMMEN, Superintendent Water Works, Berlin, Ont., Canada.

ELECTROLYSIS

ALBERT F. GANZ, Chairman, Professor Electrical Engineering, Stevens Institute of Technology, Hoboken, N. J.

CHARLES R. HENDERSON, Manager Water Works, Davenport, Iowa.

DANIEL D. JACKSON, Sanitary Expert, Engineers Building, Columbia University, New York, N. Y.

E. E. MINOR, Superintendent Water Company, New Haven, Conn.

ROBERT A. JACKSON, Superintendent Insurance and Water Company, Norristown, Pa.

REVISION OF STANDARD SPECIFICATIONS FOR CAST IRON PIPE AND SPECIALS

JOHN H. GREGORY, Chairman, Consulting Engineer, 170 Broadway, New York, N. Y.

W. H. RANDALL, Superintendent of Maintenance, Water Department, Toronto, Ont.

WALTER WOOD, President Millville Water Company, 400 Chestnut Street, Philadelphia, Pa.

FRANK A. BARBOUR, Hydraulic and Sanitary Engineer, 1120 Tremont Building, Boston, Mass.

EDWARD E. WALL, Water Commissioner, St. Louis, Mo.

STANDARD SPECIFICATIONS FOR WROUGHT IRON PIPE

A. A. REIMER, Chairman, Engineer Water Department, East Orange, N. J.

ROBERT SPURR WESTON, Consulting Sanitary Engineer, 14 Beacon Street, Boston, Mass.

GEORGE C. WHIPPLE, Consulting Engineer, Harvard University, Cambridge, Mass.

FRANK E. HALE, Chemist, Mt. Prospect Laboratory, Department of Water Supply, Gas and Electricity, Brooklyn, N. Y.

LEWIS I. BIRDSALL, Superintendent of Filtration, Minneapolis, Minn.

DEPRECIATION

LEONARD METCALF, Chairman, Consulting Engineer, 14 Beacon Street, Boston, Mass.

JOHN W. ALVORD, Consulting Engineer, 1417 Hartford Building, Chicago, Ill.

DANIEL W. MEAD, Professor Hydraulic Engineering, University of Wisconsin, Madison, Wis.

C. B. SALMON, Public Utility Broker, Beloit, Wis.

WYNKOOP KIERSTED, Consulting Engineer, 640 Midlands Building, Kansas City, Mo.

J. N. HAZELHURST, Consulting Engineer, 1123 Hurt Building, Atlanta, Ga.

W. F. WILCOX, Central Water Works, Ensley, Ala.

PREVENTION OF STREAM AND LAKE POLLUTION

THEODORE A. LEISEN, Chairman, General Superintendent Board of Water Commissioners, Detroit, Mich.

PAUL HANSEN, Chief Engineer State Board of Health, Urbana, Ill.

WILLIAM C. LOUNSBURY, General Superintendent Filtration Plant, Superior, Wis.

M. N. BAKER, Vice President New Jersey State Board of Health, Editor *Engineering News*, New York, N. Y.

C. A. EMERSON, JR., Assistant Chief Engineer, State Department of Health, Harrisburg, Pa.

STANDARD SPECIFICATIONS FOR HYDRANTS AND VALVES

B. C. LITTLE, Chairman, Superintendent Water Works, Rochester, N. Y.

MORRIS R. SHERRERD, Chief Engineer, Street and Water Commission, Newark, N. J.

JAMES H. CALDWELL, Civil Engineer, Troy, N. Y.

J. M. DIVEN, Superintendent Water Works, Troy, N. Y.

DENNIS F. O'BRIEN, President A. P. Smith Manufacturing Company, East Orange, N. J.

W. R. CONARD, Civil Engineer, Burlington, N. J.

WATER CONSUMPTION

- EDWARD S. COLE, Chairman, Hydraulic Engineer, 25 Elm Street, New York, N. Y.
J. N. CHESTER, Hydraulic and Mechanical Engineer, Union Bank Building, Pittsburgh, Pa.
W. S. CRAMER, Civil Engineer, Water Department, Lexington, Ky.
WILLIAM W. BRUSH, Deputy Chief Engineer, Department of Water Supply, Gas and Electricity, Municipal Building, New York, N. Y.
JOHN H. DUNLAP, Assistant Professor Hydraulic and Sanitary Engineering, University of Iowa, Iowa City, Iowa.

STANDARD FITTINGS FOR WATER METERS

- CHESTER R. MCFARLAND, Chairman, Secretary and Superintendent of Water Works, Tampa, Fla.
EDWARD L. PEENE, Superintendent Water Works, Yonkers, N. Y.
HARRY A. LORD, Superintendent of Water Works, Ogdensburg, N. Y.
HOWARD M. ELY, Superintendent of Water Company, Danville, Ill.
J. A. TILDEN, Mechanical Engineer, Hersey Manufacturing Company, Boston, Mass.

PLUMBING CODE AND CONTROL OF PLUMBERS

- SCOTLAND G. HIGHLAND, Chairman, Secretary and Superintendent of Water Works, Clarksburg, W. Va.
WILLIAM I. KLEIN, Resident Engineer New York Continental Jewell Filtration Company, 313 East 10th Street, Kansas City, Mo.
WILLIAM MCCARTHY, Superintendent Water Works, Bluefields, W. Va.
JAMES R. MCCLINTOCK, Hydraulic and Sanitary Engineer, 170 Broadway, New York, N. Y.

MECHANICAL ANALYSIS OF SAND

- PHILLIP BURGESS, Chairman, Hydraulic Engineer, 828 Columbus Savings and Trust Building, Columbus, Ohio.
GEORGE W. FULLER, Consulting Engineer, 170 Broadway, New York, N. Y.
EDGAR M. HOOPES, JR., Civil Engineer, Chief Engineer Water Department, Wilmington, Del.

CITY PLANNING

- ERNEST P. GOODRICH, Chairman, Consulting Engineer, Chairman Executive Committee, Conference on City Planning, 35 Nassau Street, New York, N. Y.
SAMUEL R. HATCH, Engineer State Public Utility Commission, 8 Wenzell Apartments, Madison, Wis.
J. WALTER ACKERMAN, Superintendent Water Board, Auburn, N. Y.
JAMES W. ARMSTRONG, Civil Engineer, Engineer Filtration Division, Lake Montebello, Hillen Road, Baltimore, Md.
CHARLES B. BURDICK, Hydraulic and Sanitary Engineer, 1417 Hartford Building, Chicago, Ill.

INDEX.

Accounting for public utilities.....	371
Accounting for water consumed.....	786, 787
Accounts—capital.....	327
Acquiring water works plants, methods of.....	25
ACQUISITION OF PRIVATE WATER PLANTS BY MUNICIPALITIES, THE.	
Paper by Bernard M. Wagner.....	25
discussion, Diven, J. M.....	583
Wegman, Edward.....	314, 582, 583
Address, George G. Earl (Response to Welcome).....	245
(to Convention).....	247
Address, Hon. Philip Fosdick (Cincinnati Convention).....	243
Address, John W. Hill (Cincinnati Convention).....	242
Address of Welcome, Cincinnati Convention, Hon. Frederick S. Spiegel.	240
Advertising, advantage of.....	362
AIR BOUND FILTERS. Paper by James M. Caird.....	103
Albany, N. Y., washing sand at.....	607
Allowances for paving.....	465
Alloys, choice of for water works design.....	351
classification of.....	351
U. S. Reclamation Service.....	352
Alum, arsenic content of.....	585
from bauxite, process of boiling.....	701
methods of analysis.....	588
plant at Columbus.....	698
process of making.....	694
Amendments to constitution.....	256
discussion, Bartow, Edward.....	264
Chester, J. N.....	260, 268
Davis, C. E.....	265
Diven, J. M.....	258, 262, 266, 269, 270
Earl, George G.....	257, 260, 261, 262, 265, 269, 270
Gwinn, Dow R.....	265
Hatton, T. C.....	260
Houston, George.....	267
Leisen, T. A.....	261, 269
Meyers, A. H.....	260
O'Shaughnessy, Jerry.....	266
Pollard, S. G.....	262
Reimer, A. A.....	264
Sherrerd, M. R.....	258, 260, 261, 262, 263, 265, 268, 270
Smith, J. W.....	266
Thomas, R. J.....	257, 270
Wiles, C. W.....	266

Analyses of water from railway trains, table of.....	76-79
Analysis, methods of water.....	75
ANCIENT AND MODERN ACCOUNTING FOR PUBLIC UTILITIES. Paper by Edward A. Pratt.....	371
Annual reports as a means of publicity.....	360
APPELLATE COURT OF THE STATE OF NEW YORK AND THE QUESTION OF ALLOWANCE FOR PAVING OVER MAINS IN VALUATION WORKS. Paper by John W. Alvord.....	465
discussion, Alvord, John W.....	484, 489
Cappelen, F. W.....	483
Chester, J. N.....	489
Hodgkins, H. C.....	483
Howell, R. B.....	484, 487
Knowles, Morris.....	487
Luce, Francis H.....	482
Patton, W. A.....	486
Salmon, C. B.....	487, 489
Wegman, Edward.....	489
APPLICATION OF THE THEORIES OF PUBLIC REGULATIONS TO THE MAN- AGEMENT OF UTILITIES, THE. Paper by Douglas A. Graham.....	324
Arnold, J. B., premises of valuation.....	34
Arsenic, amount in water not significant.....	592
determination of.....	589
medicinal dose of.....	591
prevalence of in nature.....	594
ARSENIC CONTENT OF FILTER ALUM, THE, Paper by Edward Bartow and A. N. Bennett.....	585
discussion, Bartow, Edward.....	595
Burgess, Phillip.....	595
Caird, James M.....	593, 595
Jennings, C. A.....	594
Kimberley, A. E.....	595
Monfort, W. F.....	595
Artesian conditions.....	321
ARTESIAN WELLS AND METHODS OF PUMPING THEM. Paper by John D. Kilpatrick.....	639
discussion, Baker, M. N.....	652
Berry, J. P.....	655, 656
Bulkeley, Oscar.....	654, 655
Kilpatrick, John D.....	650, 651, 654
McFarland, C. R.....	650
Moore, J. W. (by letter).....	652
Reimer, A. A.....	654
West, Francis D.....	656
Wills, Wirt J.....	653, 656
Artesian wells, classes of.....	644
description of.....	321
effects of pumping.....	322

Artesian wells, history of.....	322
location of.....	641
methods of drilling.....	644
methods of piping.....	648
methods of pumping.....	646
mineral content of water.....	323
at Memphis, Tenn.....	653
at Waterloo, Iowa (J. P. Berry).....	655, 656
Aspects of water works valuation.....	538
ASSESSING COSTS OF EXTENSIONS IN A MUNICIPALLY OWNED PLANT.	
Paper by D. A. Reed.....	612
discussion, Diven, J. M.....	618, 619
Earl, George G.....	620
Hersey, Francis C., Jr.....	621
Kimball, Frank C.....	622
Leisen, Theodore A.....	620
Milne, Alexander.....	618
Reed, D. A.....	623
Reimer, A. A.....	619, 622
Wills, Wirt J.....	617
Assessing costs of extensions at Detroit, Michigan.....	620
Duluth, Minnesota.....	615, 623
East Orange, New Jersey.....	619
Memphis, Tennessee.....	617
Atlantic City charge for street service.....	783
Bacteriological contamination—limits of.....	68
Bacteriological examination.....	714
Bacteriological standard for drinking water.....	67
Baltimore fire.....	630, 634
Bangor, Maine, air bound filters at.....	104
Bauxite, composition of.....	693
history of.....	695
process of boiling.....	701
specifications for at Columbus.....	697
Bauxite mining companies, list of.....	697
Berlin, Ontario, water from gravel wells.....	628
Bibliography of water plants.....	40
Blaisdell sand washing machine.....	598
Boiler troubles, causes of.....	435
Boston fire.....	630, 634, 635
Brantford, Ontario, water from gravel wells.....	627
Brasses, characteristics of.....	353
composition of.....	353
cost of compared with bronzes.....	354
Bronzes, characteristics of.....	352
composition of.....	352
cost of compared with brasses.....	354
Brooklyn method of washing filters.....	596

BUBBLY CREEK FILTER PLANT ADOPTS LIQUID CHLORINE TREATMENT.	
Paper by C. A. Jennings.....	401
discussion, Jennings, C. A.....	403
Jordan, H. E.....	402
Canvassing Board, report of.....	254
Capital accounts.....	326
Caps, use of.....	544
Caulfield, John, made honorary member.....	271
Central heating.....	739
Champaign and Urbana, wash water salvage at.....	393
Charge for street service at Atlantic City.....	783
Charter of Cincinnati water works.....	44
Chemical dosing at Council Grove, Kansas.....	99
Chemicals in water purification, dry feed of.....	200
Chicago fire.....	628, 634
Chlorination, results of.....	683
CHOICE OF ALLOYS FOR WATER WORKS DESIGN, THE.	
Paper by Horace Carpenter.....	351
Cincinnati, local committees.....	239
population.....	54
water consumption.....	52
CINCINNATI WATER WORKS, THE. Paper by John W. Hill.....	42
Cincinnati water works, charter.....	44
design of original.....	48
original established 1797.....	42
CITY FIRE LIMITS. Paper by Albert Blauvelt.....	629
discussion, Blauvelt, Albert.....	638
Classification of construction accounts.....	329
Columbus alum plant.....	698
Committee Reports:	
Electrolysis.....	276
Executive.....	253
Finance.....	273
Membership.....	271, 274
Prevention of Stream and Lake Pollution.....	277
Publication.....	296
Standard Fittings for Water Meters.....	283
Standard Specifications for Hydrants and Valves.....	279
Standard Specifications for Wrought Iron Pipe.....	276
Water Consumption.....	181, 280
Committees, 1915-16.....	792
Comparison of cost and value.....	467
Comparison of property and investment.....	466
Constitution, amendments to.....	256
discussion, Bartow, Edward.....	264
Chester, J. N.....	260, 268
Davis, Carleton E.....	265
Diven, J. M.....	258, 262, 266, 269, 270

Constitution, amendments to— <i>continued</i> .	
discussion, Earl, George G.....	257, 260, 261, 262, 265, 269, 270
Gwinn, Dow R.....	265
Hatton, T. C.....	260
Houston, George.....	267
Leisen, Theodore A.....	261, 269
Meyers, A. H.....	260
O'Shaughnessy, Jerry.....	266
Pollard, S. G.....	262
Reimer, A. A.....	264
Sherrerd, Morris R.....	258, 260, 261, 262, 263, 265, 268, 270
Smith, J. Waldo.....	266
Thomas, Robert J.....	257, 270
Wiles, C. W.....	266
Construction accounts, classification of.....	329
Contamination, limits of bacteriological.....	68
Control of flood flows of Saw Mill River.....	6
Convention 1915, minutes.....	239
Cincinnati local committees.....	239
COOLED DRINKING WATER Paper by R. F. Massa.....	422
Corrosive effect of earth on alloys and steel.....	357
Corrosive tests.....	357
Cost and value, comparison of.....	467
Cost of extensions, assessing.....	612
Council Grove, chemical dosings and action.....	99
water supply of.....	83
results and recommendations.....	99
Curb cocks.....	569
Decatur, Illinois, filtration plant.....	455
Decisions of Wisconsin Commission.....	34
Deep water supplies.....	319
Deep wells in Northern Illinois.....	410
Delaware, Ohio, water from gravel wells.....	625
Depreciation.....	331
Denver, Colorado, washing sand at.....	606
DESIGN AND OPERATION OF INTERMITTENTLY OPERATED WATER PURIFICATION PLANTS. Paper by N. T. Veatch.....	759
Detroit, Michigan, method of assessing cost of extensions.....	620
Drinking water, cooling systems.....	429
correct temperature of.....	423
influence of on employees.....	427
DRY FEED OF CHEMICALS IN WATER PURIFICATION.	
Paper by Wilson F. Monfort.....	200
discussion, Ellms, J. W.....	315
Monfort, W. F.....	315
Duluth, Minnesota, method of assessing cost of extension.....	615, 623
East Orange, New Jersey, method of assessing cost of extension.....	619

EFFECT OF ALGAE ON BICARBONATES IN SHALLOW RESERVOIRS, THE.	
Paper by S. T. Powell.....	703
Efficient Management.....	339
Electric light, first central station.....	740
Electric street railways, first.....	740
Elements of water plant valuation.....	27
Elgin, Illinois, artesian wells water at.....	407
European water purification and sewage disposal plants.....	13
Evanston, Illinois, filter plant at.....	160
Evaporation, elements of.....	667
EXAMINATION OF DRINKING WATER ON RAILWAY TRAINS. Paper by	
Edward Bartow.....	74
discussion, Bartow, Edward.....	317, 724, 725, 726
Burgess, Philip.....	728
Frost, W. H.....	727, 728
Hoover, Charles P.....	724, 726
Monfort, Wilson F.....	726
Orchard, William J.....	728
Stover, F. H.....	317, 724, 726
Taylor, George R.....	725, 729
Worthen, Jesse M.....	725
EXPERIENCES IN REBUILDING AND REENFORCING A WATER WORKS SYSTEM. Paper by Owen T. Smith.....	
Paper by Owen T. Smith.....	404
EXPERIENCE WITH ARTESIAN WELL WATER AT ELGIN, ILLINOIS.	
Paper by R. R. Parkin.....	407
Exclusive franchise.....	747
Fair return.....	337
Fever, malarial.....	669
typhoid—determining cause of.....	718
from milk supply.....	723
Filter plant at Evanston, Illinois.....	160
Filters, air bound.....	103
FILTRATION PLANT, CITY OF DECATUR, ILLINOIS.	
Paper by Harry Ruthrauff.....	455
Filtration plant at Quincy, Illinois.....	446
Fire service requirements.....	143
Franchise, definitions of.....	742
distinction between corporate and special.....	743
exclusive.....	747
indeterminate.....	754
water works.....	747
length of, in various states.....	744
conditions in various states.....	39
of water plants, value of.....	31
FRANCHISES OF PUBLIC UTILITIES AS THEY WERE AND AS THEY ARE.	
Paper by Henry C. Hodgkins.....	739
Future population, methods of computing.....	111, 112
Galena-Trenton Limestone.....	319

Gas—first plant.....	741
Going concern value decisions.....	40
Going concern value of water plants.....	31
Government control of water supplies.....	153
Gravel wells—water from.....	623
Halloysite.....	697
not used successfully for making alum.....	701
where procured.....	698
Harrisburg, Pa., air bound filters at.....	104
Heating, central.....	739
Hesser's report on water supply at Council Grove.....	94
HOW TO DETERMINE THE SIZE OF TAP AND METER. Paper by Jacob Klein	735
discussion, Luscombe, William.....	738
Hypochlorite—effect of temperature on.....	688, 690
portable apparatus for.....	689
results from use of.....	683
Hypochlorite at Denver.....	442
ILLINOIS UTILITIES COMMISSION AND THE WATER WORKS COMPANIES.	
Paper by C. G. Bennett.....	382
IMPOUNDED WATER OF ALABAMA IN RELATION TO PUBLIC HEALTH.	
Paper by Edgar B. Kay.....	657
discussion, Wilcox, W. F.....	677
Impounded waters as breeding places for mosquitoes.....	669
Impounded waters as sources of odors.....	668
Indiana, water from gravel wells.....	627
Intermittently operated purification plants, design and operation.....	759
Inventory, method of taking.....	35
Investment and property, comparison of.....	466
KINKS IN THE CONTROL OF HYPOCHLORITE AT DENVER.	
Paper by W. W. DeBerard.....	442
Lead wool for joints.....	547, 548
Lead wool for packing valves.....	553, 554
Leakage, due mostly to house fixtures.....	774
Leaky plumbing.....	576, 577
Limestone, Galena-Trenton.....	319
Magnesian.....	321
Limits of bacteriological contamination.....	68
Liquid chlorine treatment adopted at Bubbly Creek.....	401
Longview, Texas, water supply of.....	416
Lower Magnesian Limestone.....	321
MAINTENANCE OF THE WATER SUPPLY DISTRIBUTION SYSTEM OF NEW YORK	
CITY. Paper by William W. Brush.....	206
discussion, French, D. W.....	237
Brush, William W.....	237
Nelson, Fred B.....	306
Malarial fevers.....	669
Malarial surveys.....	670, 675
Management, efficient.....	339

Manchester beer scare.....	593
MANUFACTURE OF SULPHATE OF ALUMINA AT THE COLUMBUS WATER SOFT- ENING AND PURIFICATION WORKS, THE. Paper by Charles P. Hoover.	693
discussion, Burgess, Philip.....	701
Caird, James M.....	700, 701
Hawkes, A. W.....	700, 702
Hoover, Charles P.....	699, 700, 701
Market, value based on earning capacity	34
MECHANICAL ANALYSES OF SANDS. Paper by Philip Burgess.....	493
discussion, Burgess, Philip.....	510
Fuller, George W. (by letter).....	502
Fuller, William D. (by letter).....	502
Hanson, Paul.....	500
Hazen, Allen.....	504
Jewell, William M.....	501
Memphis, Tennessee, artesian wells at.....	653
method of assessing cost of extensions at.....	617
Meter bills.....	549
Meters—effect of on water waste.....	122
individual versus District.....	397
the only check on water waste.....	772
ownership of.....	555, 562
testing.....	548
Methods of acquiring water plants.....	25
METHODS OF WASHING SLOW SAND FILTERS. Paper by John Gaub	596
Methods of water analysis.....	75
Metropolitan Street Railway Case.....	34
Monel Metal—composition of.....	355
Mosquitoes.....	672
Municipal Water Works Act.....	345
Muntz Metal, composition of.....	354
NEW FILTRATION PLANT AT QUINCY, ILLINOIS, THE	
Paper by W. R. Gelston.....	446
discussion, Langlier, W. F.....	452
Babbitt, H. E.....	454
New Haven, Conn., washing sand at.....	606
New York City Distribution System, equipment, material and supplies... 217	
fire alarms.....	231
flow in mains.....	232
freezing weather repairs.....	230
leaky services.....	228
mains, valves and hydrants.....	208
maps.....	236
night and holiday duty.....	231
operating valves.....	230
pressure in mains.....	232
pressure in premises.....	230
repair department.....	211

New York City, reporting repairs required.....	225
taps.....	227
transportation.....	223
underground leakage.....	307
waste in buildings.....	233
New York State Public Service Commission.....	753
Nichols sand washing machine.....	602
Nickel-Steel Alloy.....	355
Nitrogen content of water.....	61
OBSERVATIONS OF SOME EUROPEAN WATER PURIFICATION AND SEWAGE DISPOSAL PLANTS. Paper by Edward Bartow.....	13
Odor and taste due to organic matter.....	691
Officers 1915-16.....	791
Officers' Reports—Secretary.....	271
Treasurer.....	272
Ontario Board of Health.....	345
statutes and their administration.....	344
Organic matter, affecting taste and odor.....	691
Paving, allowances for.....	465
Pamphlets as means of publicity.....	361
Philadelphia, washing sand at.....	608
water consumption in.....	152
yield at.....	610
Physical value of water plants.....	28
Pipe, comparative cost per foot.....	110
service.....	550
test of wrought iron.....	551, 552
PIPE DISTRIBUTIONS SYSTEM. Paper by Nicholas S. Hill, Jr.....	107
discussion, Alvord, John W.....	150
Chester, J. N.....	155
Cramer, W. S.....	157
Diven, J. M.....	158
Gear, Patrick.....	159
Hansen, Paul.....	155
Hawley, W. C.....	158
Hill, Nicholas S., Jr.....	154, 155, 158
Hodgkins, H. C.....	157
Trautwine, John C., Jr.....	151
Pipe Distribution Systems.....	107
A study of.....	107
Consumers.....	114
Distribution of Population on.....	112
Future Considered.....	108
Population: Arithmetical method.....	111
Comparative method.....	111
Geometrical method.....	112
Incremental method.....	111
Comparison of methods.....	112

Pipe Distribution Systems—*continued*.

Preliminary data.....	107
Pressures: service pressures required.....	145
static.....	148
Water consumption:.....	115
abnormal fluctuations.....	142
average or normal.....	115
domestic.....	116
effect of meters in reducing waste.....	122
effect of sewers upon	124
fire service requirements.....	143
fluctuation.....	132
industrial and commercial.....	119
municipal and public.....	118
progressive increase in normal.....	128
subdivisions by districts.....	144
variations in average per capita.....	125
unaccounted for.....	120
Pittsburgh, Pa., washing sand at.....	608
PLUMBING CODE AND CONTROL OF PLUMBERS.	
Paper by Scotland G. Highland	762
discussion, Chester, J. N.....	776, 779
Connor, F. J.....	777, 778
Diven, J. M.....	781
Folwell, A. P.....	775
Hersey, Francis C., Jr.....	786
Hodgkins, H. C.....	783
Hornung, George.....	787
Houston, George.....	772, 785
Leisen, T. A.....	776, 781, 782
Morgan, H. B.....	779, 780
Reimer, A. A.....	773, 777, 778, 779, 780, 783
Souder, B. F.....	783
Wilcox, W. F.....	786, 788
Plumbing code—first adopted 1881	762
points embraced	765
why required	763
Pneumatic tubes.....	739
Pollution, determination of extent of.....	712
POSSIBILITY OF AN IMPROVED WATER FROM DEEP WELLS IN NORTHERN	
ILLINOIS. Paper by C. B. Williams.....	410
Potsdam Sandstone.....	321
PRACTICAL VALUE OF PUBLICITY TO THE WATER WORKS MAN, THE.	
Paper by S. C. Hadden.....	359
discussion, Gwinn, Dow R.....	366
Premises of Valuation, J. B. Arnold.....	34
PRESENT STATUS OF DISINFECTION OF WATER SUPPLIES.	
Paper by Francis F. Longley.....	679

PRESENT STATUS OF DISINFECTION OF WATER SUPPLIES—*continued*.

discussion, Curry, D. P.....	692
Jennings, C. A.....	687
Jewell, W. M.....	687, 688
Kienle, J. A.....	689, 692
Letton, H. P.....	688, 692
Litch, M. B.....	688
Sackett, R. L.....	689
Pressure, control of.....	572, 573, 575
Property and investment, comparison of.....	466
Provincial Board of Health of Ontario.....	345
Public Health Act.....	345
Public service commissions in different states.....	749
Public utilities—charges and credits.....	756
control of.....	755
efficient management of.....	757
Publicity, practical value of.....	359
Publicity work by water works associations.....	565
QUESTION BOX—	
Question 1. Experience in the use of caps instead of plugs on dead ends and unconnected branch pipes; is there any economy or advantage in the use of such caps?.....	544
discussion, Diven, J. M.....	544
Question 2. What legal right has a water company to the use of public streets after the expiration of its franchise? Experiences of water companies whose franchises have expired, especially in cases where duplicate public works have been built.....	544
discussion, Chester, J. N.....	544
Connor, F. J.....	545
Davis, E. E.....	546
Diven, J. M.....	546, 547
Hodgkins, H. C.....	545
Houston, George.....	544
Patton, W. A.....	546
Wilcox, W. F.....	547
Question 3. What experience have you had in the use of lead wool for joints in cast iron pipes? Is it as economical and satisfactory as melted pig lead?.....	547
discussion, Bulkeley, Oscar.....	548
Diven, J. M.....	547
Wiles, C. W.....	547
Question 4. Is it your practice to test new water meters or meters repaired at the factory, or do you rely on factory tests? If tests of such meters are made, do they indicate that the new or factory repaired meters are accurate or not?.....	548
discussion, Leisen, T. A.....	548
Reimer, A. A.....	548
Question 5. Are meter bills of municipal water works a lien on property? If so, how are they regulated?	549

QUESTION BOX—*continued*.

discussion, Chester, J. N.....	549
Earl, G. G.....	549
Quincy, Illinois, filtration plant at.....	446
RAPID FILTER PLANT AT EVANSTON, ILLINOIS, THE.	
Paper by Langdon Pearse.....	160
Report of Canvassing Board.....	254
Reports of Committees—Electrolysis.....	276
Executive.....	253
Finance.....	273
Membership.....	271, 274
Prevention of Stream and Lake Pollution.....	277
Publication.....	296
Standard Fittings for Water Meters.....	283
Standard Specifications for Hydrants and Valves.....	279
Standard Specifications for Wrought Iron Pipe..	276
Water Consumption.....	181—199, 280
Reports of Officers—Secretary.....	271
Treasurer.....	272
Reproduction, a complete entity.....	475
compared with original cost.....	467
Reproduction, what is it.....	472
Requirements for fire services.....	143
Results and recommendations Council Grove water supply treatment...	99
Ripon, Wisconsin, water from gravel wells.....	627
RIVER SAND AS A FILTER MEDIUM. Paper by L. A. Fritze.....	390
Rochester, New York, water consumption in.....	151
Sand—river, as a filter medium.....	390
Sand analysis, sieves for.....	497, 499
washing machines.....	598
analyses of.....	493
Sandstone, Potsdam.....	321
St. Peter.....	319
Sanitary Survey.....	713
SECTIONS—	
Central States.....	303, 790
Constitution.....	303
Chemical and Bacteriological.....	305
Illinois.....	Mch. IV, 789
Illinois Constitution.....	Mch. VI
Minutes of the Meeting.....	291
Report of Publication Committee.....	296
Report of Secretary.....	295
Iowa.....	300, 790
Constitution.....	301
New York.....	Mch. III, 290, 789
Philadelphia.....	790

Service pipe, manufacture of.....	569
material.....	550
Sewage disposal plants, European.....	13
Sewers—effect upon water consumption.....	124
under private companies.....	739
Sherrerd Resolution.....	286
discussion, Chester, J. N.....	287
Sherrerd, Morris R.....	287
Sieves, for sand analysis.....	497, 499
Signaling systems.....	740
SOME FEATURES OF THE ONTARIO STATUTES AND THEIR ADMINISTRATION AFFECTING WATERWORKS SUPPLIES AND SEWERAGE SYSTEMS.	
Paper by F. A. Dallyn.....	344
SOME CONSIDERATIONS IN ESTIMATING THE SANITARY QUALITY OF WATER SUPPLY. Paper by William H. Frost.....	712
discussion, Burgess, Philip.....	733
DeBerrard, W. W.....	734
Frost, William H.....	723
Hansen, Paul.....	734
Jewell, W. M.....	723
Monfort, W. F.....	734
Orchard, William J.....	733
Worthen, Jesse, N.....	724
SOME ECONOMIC ASPECTS OF WATERWORKS VALUATION.	
Paper by Ralph E. Heilman.....	538
SPECIAL WATER STANDARD, A. Paper by W. F. Monfort.....	65
discussion, Race, Joseph.....	313
Springfield, Mass., washing sand at.....	609
yield at.....	610
St. Peter sandstone.....	319
Standard for drinking water, bacteriological.....	67
STATE REGULATION OF MUNICIPALLY OWNED PLANTS.	
Paper by C. M. Larsen.....	515
Strainer bolts, tests of.....	175
Strainer plates, data of.....	174
tests of.....	173
STUDIES OF ARTESIAN WATER IN CHICAGO AND SURROUNDING TERRITORY.	
Paper by Carl B. Anderson and F. W. DeWolf.....	318
Sulphuric acid, specifications for.....	698
Surface deposits.....	319
Surveys—malarial.....	670
Surveys—sanitary.....	713
Taste and odor—Due to organic matter.....	691
Telegraph, invention of.....	740
Telephone, first at New Haven, Conn.....	740
Test of strainer bolts.....	175
Test of strainer plates.....	173

TOPICAL DISCUSSIONS

CARE OF VALVES

- Packing and material used for packing; lasting qualities of various packings; setting of valves to permit packing without digging up streets; oiling valves, both stuffing boxes and gears..... 553
- discussion, Diven, J. M..... 555
- Luscombe, William..... 553
- Parlin, R. W..... 555
- Reimer, A. A..... 554
- Worrell, W. L..... 553, 554

CONTROL OF PRESSURE

- Control of pressure wave in an 18" water main $5\frac{1}{2}$ miles long from motor driven turbine pump. When power goes off at power station the pressure drops to 10 feet and rebounds up to 420 feet, each wave less until pumping against the head of 267 feet with a friction of 32 feet on 299 feet..... 572
- discussion, Davis E. E..... 575
- Hornung, George..... 573
- Wilcox, W. F..... 572

CURB COCKS

- Necessity of installing, their use and care; advisability and practicability of placing shutoff in the street, at or near the main to take care of service leaks outside of the curb line; cost of street boxes, keeping record of them, etc., as compared with curb boxes..... 569
- discussion, Diven, J. M..... 569

LEAKY PLUMBING

- Enforcing rules concerning leaks in plumbing, by fines, shutting off water or other means. General discussion of plumbing and reduction of leaks in unmetered buildings..... 576
- discussion, Diven, J. M..... 577
- Klein, Jacob..... 576

OWNERSHIP OF METERS

- A general discussion of who should own the water meters and experience with publicity and privately owned meters. Care of privately owned meters..... 555
- discussion, Bohman, H. P..... 563, 564
- Davis, E. E..... 566
- Gear, Patrick..... 559, 565, 566
- Haseltine, W. E..... 560, 561
- Hersey, Francis F., Jr..... 560
- Houston, George... 555, 556, 557, 558, 559, 560, 562, 563, 564
- Morgan, H. B..... 565
- Patton, W. A..... 561
- Watson, Walter L..... 565
- Wiles, C. W..... 562, 563

SERVICE PIPES

- Experience with various materials, particularly with steel or iron ungalvanized. Reasons for using iron or steel instead of lead; experience with material other than iron, steel or lead..... 550

<i>SERVICE PIPES—continued.</i>	
discussion, Bulkeley, Oscar.....	569
Conard, W. R.....	551
Diven, J. M.....	552, 570
Haddon, W. J.....	551
Parlin, R. W.....	551
Reimer, A. A.....	550, 551
Thomas R. J.....	553
Wilcox, W. F.....	550, 571
Wiles, C. W.....	551
Worrell, M. L.....	571
Toronto, washing sand at.....	606
TREATMENT OF WATER FOR LOCOMOTIVE USE. Paper by W. A. Pownall.....	434
TRUE OBJECT OF WATER ANALYSIS, THE. Paper by Frank L. Rector....	709
Typhoid bacilli.....	713
Typhoid Fever, determining cause of infection.....	718
from milk supply.....	723
Underground water supply.....	318
U. S. Reclamation Service.....	353
Value of franchise of water plants.....	31
Value of publicity to the water works man.....	359
Value and costs, comparison of.....	467
Valves, care of.....	553
packing material.....	553, 554
Wash water, reclamation of.....	731
WASH WATER SALVAGE AT CHAMPAIGN AND URBANA. Paper by Harold E.	
Babbitt.....	393
discussion, Babbitt, H. E.....	396
DeBerard, W. W.....	396
Jennings, C. A.....	395
Washing filters, Brooklyn method.....	596
Washing sand at Albany, N. Y.....	607
Denver, Colo.....	606
Lawrence, Mass.....	607
New Haven, Conn.....	606
Philadelphia.....	608
Pittsburgh.....	608
Springfield, Mass.....	609
Toronto, Canada.....	606
Washington, D. C.....	602
Wilmington, Del.....	609
Washington, D. C. washing sand at.....	602
yields at.....	610
WASTE PREVENTION BY INDIVIDUAL METERS VERSUS DISTRICT METERS.	
Paper by R. O. Wynne-Roberts.....	397
Water, mineral content from artesian wells.....	323
standard for drinking.....	67
Water analysis from railway trains, table of.....	76-79

Water analysis, methods of.....	75
WATER ANALYSIS AND THE NITROGEN CONTENT OF WATER. Paper by William M. Booth.....	61
Water bearing formation.....	319
Water consumed, accounting for.....	786, 787
Water consumers, estimating future.....	114
Water consumption, classification of.....	115
domestic.....	116
effect of sewers on.....	124
fire service requirements.....	143
fluctuations in.....	132
fluctuations abnormal.....	142
fluctuations average or normal.....	115
increase in normal demand.....	128
industrial and commercial.....	119
municipal and public.....	118
report of committee on.....	181-199
subdivisions by districts.....	144
unaccounted for.....	120
variation in average per capita.....	125
variation in total per capita.....	127
Water finders.....	642, 652
Water plants, bibliography.....	40
going concern value of.....	31
going concern value decisions.....	40
inventory, method of taking.....	35
market value based on earning capacity.....	34
physical value of.....	28
value of franchise of.....	31
Water plant valuation, elements of.....	27
Water purification, dry feed of chemicals in.....	200
Water purification plants—European.....	13
Water samples, shipping.....	729, 732
Water standards for interstate carriers.....	724
Water supplies, central administration of.....	153
government control of.....	153
Water supply, underground.....	318
Water supply at Council Grove, Kansas.....	83
WATER SUPPLY OF LONGVIEW, TEXAS. Paper by P. A. Green.....	416
WATER SUPPLY TREATMENT AT COUNCIL GROVE, KANSAS. Paper by Louis L. Tribus.....	83
Water supply treatment at Council Grove, Hesser's report on.....	94
Water table of deep wells—lowering of.....	322
Water waste—effect of meters on.....	122
meter only check.....	772
prevention of.....	767
unaccounted for.....	120

WATER FROM GRAVEL WELLS. Paper by C. W. Wiles.....	623
discussion, Haddow, W. J.....	627
Haseltine, W. E.....	627
Hodgkins, H. C.....	628
Hymmen, H.....	628
Moore, J. W.....	627
Wiles, C. W.....	626
Water from gravel wells at Berlin, Ontario.....	628
at Brantford, Ontario.....	628
at Delaware, Ohio.....	625
at Ripon, Wis. (Haseltine).....	627
in Indiana.....	627
Water works, brief history of.....	741
Water works design, alloys for.....	351
Water works franchises.....	747
conditions in various states.....	39
plants, methods of acquiring.....	25
Water works valuation, some aspects of.....	538
Water Works Act—The Municipal.....	345
Water works associations, value of.....	365
Waterloo, Indiana, artesian wells at (Berry).....	655, 656
Wells, kinds of.....	318
Wilmington, Delaware, air bound filters at.....	104
washing sand at.....	609
yields at.....	610
Wisconsin Commission, decisions of.....	34
Wisconsin Public Service Commission.....	753
Yonkers, N. Y., location of.....	1
rainfall record.....	1
YONKERS WATER SUPPLY AND ITS FUTURE DEVELOPMENT, THE.	
Paper by D. F. Fulton.....	1
discussion, Hazen, Allen.....	8
Peene, E. L.....	8
Trautwine, J. C., Jr.....	8, 11
Wegman, Edward..	311
Yonkers Water Supply, consumption.....	5
estimated cost of proposed extension.....	8
filters, size and capacity.....	3
history of.....	2
map of, (insert opposite).....	6
source of.....	4
topography of.....	2

AUTHORS' INDEX.

ALVORD, JOHN W., paper, THE APPELLATE COURT OF THE STATE OF NEW YORK AND THE QUESTION OF ALLOWANCE FOR PAVING OVER MAINS IN VALUATION WORK.....	465
discussion, paving over mains.....	484, 489
pipe distribution system.....	150
ANDERSON, CARL B. (Col. F. W. DeWolf), paper, STUDIES OF ARTESIAN WATERS IN CHICAGO AND SURROUNDING TERRITORY.....	318
BABBITT, HAROLD E., paper, WASH WATER SALVAGE AT CHAMPAIGN AND URBANA.....	393
discussion, wash water salvage.....	396
BAKER, M. N.	
discussion, artesian wells.....	652
BARTOW, EDWARD (Col. A. N. Bennett), paper, ARSENIC CONTENT OF FILTER ALUM.....	585
BARTOW, EDWARD, paper, EXAMINATION OF DRINKING WATER ON RAILWAY TRAINS.....	74
OBSERVATIONS OF SOME EUROPEAN WATER PURIFICATION AND SEWAGE DISPOSAL PLANTS.....	13
discussion, amendment to constitution.....	264
arsenic in filter alum.....	595
examination of water on railway trains	317, 724, 725, 726, 731
BENNETT, A. N. (Col. Edward Bartow), paper, ARSENIC CONTENT OF FILTER ALUM.....	585
BENNETT, C. G., paper, ILLINOIS UTILITIES COMMISSION AND THE WATER WORKS COMPANIES.....	382
BERRY, J. P.	
discussion, artesian wells.....	655, 656
BLAUVELT, ALBERT paper, CITY FIRE LIMITS.....	628
discussion, city fire limits.....	638
BOHMAN, HENRY P.	
discussion, ownership of meters.....	563, 564
BOOTH, WILLIAM M., paper, WATER ANALYSIS AND THE NITROGEN CONTENT OF WATER.....	61
BRUSH, WILLIAM W., paper, MAINTENANCE OF THE WATER SUPPLY DISTRIBUTION SYSTEM OF NEW YORK CITY.....	206
discussion, New York City distribution system.....	237
BULKELEY, OSCAR	
discussion, artesian wells.....	654, 655
service pipes.....	569
Question 3—use of lead wool.....	548

- BURGESS, PHILIP, paper, MECHANICAL ANALYSIS OF SANDS..... 493
 discussion, mechanical analysis..... 510
 water on railway trains..... 728, 733
 manufacture of sulphate alumina..... 701
- CAIRD, JAMES M., paper, AIR BOUND FILTERS..... 103
 discussion, arsenic in filter alum..... 593, 595
 manufacture sulphate alumina..... 700, 701
- CAPPELEN, F. W.
 discussion, paving over mains..... 482
- CARPENTER, HORACE, paper, THE CHOICE OF ALLOYS FOR WATER WORKS
 DESIGN..... 351
- CAULFIELD, JOHN
 response to conferring of honorary membership..... 271
- CHESTER, J. N.
 discussion, paving over mains..... 489
 amendment to constitution..... 260, 268
 pipe distribution system..... 155
 plumbing code..... 776, 779
 Question 2—Rights of water companies in public streets. 544
 Question 5—regulation of meter bill..... 549
 Sherrerd resolution..... 287
- CONARD, WILLIAM R.
 discussion, service pipes..... 551
- CONNOR, F. J.
 discussion, plumbing code..... 777, 778
 Question 2—rights of water companies in public streets. 545
- CRAMER, W. S.
 discussion, pipe distribution system..... 157
- CURRY, D. P.
 discussion, water on railway trains..... 729
 disinfection of water supplies..... 692
- DALLYN, F. A., paper, SOME FEATURES OF THE ONTARIO STATUTES AND
 THEIR ADMINISTRATION AFFECTING WATER SUPPLIES AND SEWER-
 AGE SYSTEMS..... 344
- DAVIS, C. E.
 discussion, amendment to the constitution..... 265
- DAVIS, E. E.
 discussion, control of pressure..... 575
 ownership of meters..... 566
 Question 2—rights of water companies in public streets. 546
- DEBERARD, W. W., paper, KINKS IN THE CONTROL OF HYPOCHLORITE AT
 DENVER..... 442
 discussion, wash water salvage..... 396
 water on railway trains..... 734
- DE WOLF, F. W. (Col. Carl B. Anderson), paper, STUDIES OF ARTESIAN
 WELLS IN CHICAGO AND SURROUNDING TERRITORY..... 318

- DIVEN, J. M.
 discussion, amendment to constitution..... 258, 262, 266, 269, 270
 care of valves..... 555
 leaky plumbing..... 577
 pipe distribution systems..... 158
 plumbing code..... 781
 assessing costs extensions..... 618, 619
 Service pipes..... 552, 570
 Question 1—use of caps or plugs..... 544
 Question 2—rights of water companies in public streets,
 546, 547
 Question 3—use of lead wool..... 547
 acquisition of private water plants..... 583
- EARL, GEORGE G.
 address to convention..... 247
 address, response to address of welcome Cincinnati convention.... 245
 discussion, amendments to constitution... 257, 260, 261, 262, 265, 269, 270
 Question 5—regulation of meter bill..... 549
 assessing cost of extensions..... 620
- ELMS, J. W.
 discussion, dry feed chemicals..... 315
- ELY, H. M.
 address to Illinois section..... 291
- FOLWELL, A. P.
 discussion, plumbing code..... 775
- FOSDICK, HON. PHILIP, address Cincinnati convention..... 243
- FRENCH, D. W.
 discussion, New York City distribution system..... 237
- FRITZE, L. A., paper, RIVER SAND AS A FILTER MEDIUM..... 390
- FROST, W. H., paper, SOME CONSIDERATIONS IN ESTIMATING THE SANITARY
 QUALITY OF WATER SUPPLIES..... 712
 discussion, sanitary quality of water supplies..... 723, 727, 728
- FULLER, GEORGE W.
 discussion, analyses of sands (by letter)..... 502
- FULLER, WILLIAM B.
 discussion, analyses of sands (by letter)..... 502
- FULTON, D. F., paper, THE YONKERS WATER SUPPLY AND ITS FUTURE
 DEVELOPMENT..... 1
- GAUB, JOHN, paper, METHOD OF WASHING SLOW SAND FILTERS..... 596
- GEAR, PATRICK
 discussion, ownership of meters..... 559, 565, 566
 pipe distribution system..... 159
- GELSTON, W. R., paper, THE NEW FILTRATION PLANT AT QUINCY, ILLI-
 NOIS..... 446
- GRAHAM, D. A., paper, THE APPLICATION OF THE THEORIES OF PUBLIC
 REGULATION TO THE MANAGEMENT OF UTILITIES..... 324
- GREEN, P. E., paper, THE WATER SUPPLY OF LONGVIEW, TEXAS..... 416

GWINN, Dow R.	
discussion, amendment to the constitution.....	265
value of publicity to the water works man.....	366
HADDON, S. C., paper, THE PRACTICAL VALUE OF PUBLICITY TO THE WATER WORKS MAN.....	359
HADDOW, W. J.	
discussion, service pipes.....	551
water from gravel wells.....	627
HANSEN, PAUL	
discussion, analyses of sands.....	500
water on railway trains.....	731, 734
pipe distribution system.....	155
HASELTINE, W. E.	
discussion, ownership of meters.....	560, 561
water from gravel wells.....	627
HATTON, T. C.	
discussion, amendment to the constitution.....	260
HAWKES, A. W.	
discussion, manufacture of sulphate alumina.....	700, 702
HAWLEY, W. C.	
discussion, pipe distribution system.....	158
HAZEN, ALLEN	
discussion, analyses of sands (by letter).....	504
Yonkers water supply.....	8
HEILMAN, RALPH E., paper, SOME ECONOMIC ASPECTS OF WATER WORKS VALUATION.....	538
HERSEY, FRANCIS C., JR.	
discussion, ownership of meters.....	560
plumbing code.....	786
assessing cost of extensions.....	621
HIGHLAND, SCOTLAND G., paper, PLUMBING CODE AND CONTROL OF PLUMBERS.....	763
HILL, JOHN W., address, Cincinnati convention.....	242
paper, THE CINCINNATI WATER WORKS.....	40
HILL, NICHOLAS S., JR., address, response to election as president.....	289
paper, PIPE DISTRIBUTION SYSTEMS.....	107
discussion, pipe distribution systems.....	154, 155, 158
HODGKINS, Henry C., paper, FRANCHISES OF PUBLIC UTILITIES AS THEY WERE AND AS THEY ARE.....	739
discussion, paving over mains.....	483
pipe distribution system.....	157
plumbing code.....	783
water from gravel wells.....	628
HOOVER, CHARLES P., paper, THE MANUFACTURE OF SULPHATE OF ALU- MINA AT THE COLUMBUS WATER SOFTENING AND PURIFICATION WORKS.....	693
discussion, manufacture of alumina.....	699, 700, 701
water on railway trains.....	724, 726

- HORNUNG, GEORGE**
 discussion, control of pressure..... 573
 plumbing code..... 787
- HOUSTON, GEORGE**
 discussion, amendment of the constitution..... 267
 ownership of meters.. 555, 556, 557, 558, 559, 560, 562, 563, 564
 plumbing code..... 772, 785
 Question—rights of water companies in public streets...
 544, 545
- HOWELL, R. B.**
 discussion, paving over mains..... 484, 487
- HYMMEN, H.**
 discussion, water from gravel wells..... 628
- JENNINGS, C. A.**, paper, **BUBBLY CREEK FILTER PLANT ADOPTS LIQUID
 CHLORINE TREATMENT..** 401
 discussion, Bubbly creek filter plant..... 403
 arsenic in filter alum..... 594
 disinfection of water supplies..... 687
 wash water salvage..... 395
- JEWELL, WILLIAM M.**
 discussion, analyses of sands..... 501
 sanitary quality of water supplies..... 723
 disinfection of water supplies..... 687, 688
- JORDAN, H. E.**
 discussion, Bubbly creek filter plant..... 402
- KAY, EDGAR B.**, paper, **IMPOUNDED WATERS OF ALABAMA.**..... 657
- KIENLE, JOHN A.**
 discussion, disinfection of water supplies..... 689, 692
- KILPATRICK, JOHN D.**, paper, **ARTESIAN WELLS AND METHODS OF PUMPING
 THEM.**..... 639
 discussion, artesian wells..... 650, 651, 654
- KIMBALL, FRANK C.**
 discussion, assessing cost of extensions..... 622
- KLEIN, JACOB**, paper, **HOW TO DETERMINE THE SIZE OF TAP AND METER.** 735
 discussion, leaky plumbing..... 576
- KNOWLES, MORRIS**
 discussion, paving over mains..... 487
- LANGLIER, W. F.**
 discussion, filtration plant at Quincy..... 452
- LARSON, C. M.**, paper, **STATE REGULATION OF MUNICIPALLY OWNED
 PLANTS.**..... 515
- LEDoux, J. W.**
 discussion, paving over mains..... 491
- LEISEN, T. A.**
 discussion, amendment to constitution..... 261, 269
 plumbing code..... 776, 781, 782
 assessing cost of extensions..... 620
 Question 4—testing meters..... 548

- LETTON, H. P.
discussion, disinfection of water supplies..... 688, 692
- LITCH, M. B.
discussion, disinfection of water supplies..... 688
- LONGLEY, FRANCIS F., paper, PRESENT STATUS OF DISINFECTION OF
WATER SUPPLIES..... 679
- LUCE, F. H.
discussion, paving over mains..... 482
- LUSCOMBE, WILLIAM
discussion, care of valves..... 553
how to determine size of tap..... 738
- McFARLAND, C. R.
discussion, artesian wells..... 650
- MASSA, R. F., paper, COOLED DRINKING WATER..... 422
- METCALF, LEONARD, address, response to election..... 289
- MEYERS, A. H.
discussion, amendment to constitution..... 260
- MILNE, ALEXANDER
discussion, assessing cost of extensions..... 618
- MONFORT, W. F., paper, A SPECIAL WATER STANDARD..... 65
paper, DRY FEED OF CHEMICALS IN WATER PURIFICATION..... 200
discussion, arsenic in filter alum..... 595
dry feed of chemicals..... 315
sanitary quality of water supplies..... 726, 734
- MOORE, JOHN W.
discussion, artesian wells (by letter)..... 652
water from gravel wells..... 627
- MORGAN, HENRY B.
discussion, ownership of meters..... 565
plumbing code..... 779, 780
- NELSON, FRED B.
discussion, New York City distribution system..... 306
- ORCHARD, WILLIAM J.
discussion, sanitary quality of water supplies..... 728, 733
- O'SHAUGHNESSY, JERRY
discussion, amendment to constitution..... 266
- PARKIN, R. R., paper, EXPERIENCE WITH ARTESIAN WELL WATER AT
ELGIN, ILLINOIS..... 407
- PARLIN, R. W.
discussion, care of valves..... 555
service pipes..... 551
- PATTON, W. A.
discussion, paving over mains..... 486
ownership of meters..... 561
Question 2—rights of water companies in public streets.. 546
- PEARSE, LANGDON, paper, THE RAPID FILTER PLANT AT EVANSTON,
ILLINOIS..... 160
- PEENE, E. L.
discussion, Yonkers water supply..... 8

- POLLARD, S. G.
 discussion, amendment to constitution..... 262
- POWELL, S. T., paper, THE EFFECT OF ALGAE ON BICARBONATES IN SHAL-
 LOW RESERVOIRS..... 703
- POWNALL, W. A., paper, TREATMENT OF WATER FOR LOCOMOTIVE USE... 434
- PRATT, EDWARD A., paper, ANCIENT AND MODERN ACCOUNTING FOR
 PUBLIC UTILITIES..... 371
- RACE, JOSEPH
 discussion, special water standard..... 313
- RECTOR, FRANK L., paper, THE TRUE OBJECT OF WATER ANALYSIS..... 709
- REED, D. A., paper, ASSESSING COST OF EXTENSION IN MUNICIPALLY
 OWNED PLANTS..... 612
- REIMER, A. A.
 discussion, amendment to constitution..... 264
 artesian wells..... 654
 care of valves..... 554
 plumbing code..... 773, 777, 778, 779, 780, 783
 assessing cost of extension..... 619, 622, 623
 Question 3—use of lead wool..... 548
 service pipes..... 550, 552
- RUTHRAUFF, HARRY, paper, FILTRATION PLANT, CITY OF DECATUR,
 ILLINOIS..... 455
- SACKETT, R. L.
 discussion, disinfection of water supplies..... 689
- SALMON, C. B.
 discussion, paving over mains..... 485, 489
- SHERRERD, MORRIS R.
 discussion, amendment to constitution
 258, 260, 261, 262, 263, 265, 268, 270
 Sherrerd resolution..... 286, 287
 resolution, in regard to public utilities commission..... 286
- SMITH, J. WALDO
 discussion, amendment to constitution..... 266
- SMITH, OWEN T., paper, EXPERIENCES IN REBUILDING AND REENFORC-
 ING A WATER WORKS SYSTEM..... 404
- SOUDER, B. F.
 discussion, plumbing code..... 783
- SPIEGEL, HON. FREDERICK S., Mayor of Cincinnati, address of welcome.. 240
- STOVER, F. H.
 discussion, examination of drinking water on railway trains.... 317, 732
 sanitary quality of water..... 723, 732
- TAYLOR, GEORGE R.
 discussion, water on railway trains..... 725, 729
- THOMAS, ROBERT J.
 discussion, amendment to constitution..... 257, 270
 service pipes..... 553
- TRAUTWINE, JOHN C., JR.
 discussion, pipe distribution system..... 151
 Yonkers water supply..... 8, 11

TRIBUS, LOUIS L., paper, WATER SUPPLY TREATMENT AT COUNCIL GROVE, KANSAS.....	83
VEATCH, N. T., paper, THE DESIGN AND OPERATION OF INTERMITTENTLY OPERATED PURIFICATION PLANTS.....	759
WAGNER, BERNARD M., paper, THE ACQUISITION OF PRIVATE WATER PLANTS BY MUNICIPALITIES.....	25
WATSON, WALTER L. discussion, ownership of meters.....	565
WEGMAN, EDWARD discussion, paving over mains..... acquisition of water plants..... Yonkers water supply.....	489 314, 582, 583 311
WEST, FRANCIS D. discussion, artesian wells.....	656
WILCOX, W. F. discussion, control of pressure..... impounded waters of Alabama..... plumbing code..... service pipes..... Question 2—rights of water companies in public streets.....	572 677 786, 788 550, 571 547
WILES, C. W., paper, WATER FROM GRAVEL WELLS..... discussion, amendment to constitution..... ownership of meters..... service pipes..... water from gravel wells..... Question 3—use of lead wool.....	625 266 562, 563 551 626 547
WILLIAMS, C. B., paper, THE POSSIBILITY OF AN IMPROVED WATER FROM DEEP WELLS IN ILLINOIS.....	410
WILLS, WIRT J. discussion, artesian wells..... plumbing code..... assessing cost of extensions.....	653, 656 788 617
WORRELL, M. L. discussion, care of valves..... service pipes.....	553 570
WORTHEN, JESSE M. discussion, water on railway trains.....	724, 725
WYNNE-ROBERTS, R. O., paper, WASTE PREVENTION BY INDIVIDUAL METERS VERSUS DISTRICT METERS.....	397